



Dharampeth M. P. Deo Memorial Science College, Nagpur
Syllabus wise You Tube Links

B. Sc. SEM V (Mathematics)

M-9: Complex Analysis

Unit I

Definition of Functions of complex variable, Limit, Continuity, Differentiability, Analytic function, Necessary and sufficient conditions for $f(z)$ to be analytic, C-R equations in polar form. Orthogonal curves, Harmonic function, Method to find the conjugate function, MilneThomson method.

https://www.youtube.com/watch?v=aAZyQAPKAus&list=PLzuxOP_ebC2GN8FSFfQQb16TSvhRzWwwR&index=2 By Roshan Thakre

Unit II

Transformation, Conformal transformation, Transformations - Linear, Magnification, Rotation, Inversion, Reflection and their combinations, Bilinear transformation. Schwarz-Christoffel transformation.

https://www.youtube.com/watch?v=ojRREMGVaw8&list=PLzuxOP_ebC2GN8FSFfQQb16TSvhRzWwwR&index=4 By Roshan Thakre

Unit-III

Complex integration, Cauchy integral theorem, Cauchy integral formula, Morera Theorem, Cauchy's inequality, Liouville Theorem.

https://www.youtube.com/watch?v=5hhgWVJ5-Mo&list=PLzuxOP_ebC2GN8FSFfQQb16TSvhRzWwwR&index=1 By Roshan Thakre

Unit IV

Convergence of a series of complex terms, Taylor's theorem, Laurent's theorem, Singular point, Residue, Residue theorem, Evaluation of real definite integral by contour integration, Evaluation of improper indefinite integral.

https://www.youtube.com/watch?v=bwW_rrSTkgg&list=PLzuxOP_ebC2GN8FSFfQQb16TSvhRzWwwR&index=3 By Roshan Thakre